

THE WALTER REED ARMY INSTITUTE OF RESEARCH

Viral Diseases

Mission

- To conduct laboratory and field investigations of the etiology, epidemiology, and pathogenesis of viral disease of military importance. Current targets include dengue, adenovirus, and other respiratory viruses to include influenza (H1N1).

Scope of Problem

- Dengue is the leading vector-borne disease globally causing 50 to 100 million infections and 25,000 deaths annually.
- The leading cause of Acute Respiratory Disease among basic trainees is the **adenovirus**. Adenovirus accounts for thousands of hospitalizations per year including occasional deaths, reduced training efficacy, and increased training costs. Newly emergent serotypes are now circulating in basic training camps.
- Respiratory infections, including influenza, cause 25-30% of all infectious disease hospitalizations in the military, second only to injury as a cause of disease and non-battle injury (DNBI) among operational forces. There is a clear strategic threat associated with pandemic influenza.

Major Accomplishments

- As a research branch, we have developed the following vaccines:
 - First influenza vaccine in 1948
 - Oral adenovirus vaccine for type 4 and 7 in 1980
 - Japanese Encephalitis Virus vaccine in 1992, and an improved vaccine in 2009
 - Hepatitis A vaccine in 1995
- Discovered Respiratory Syncytial Virus, Rubella, and canine parvovirus also referred to as kennel cough agent

Future Directions and Challenges:

- Dengue: acquire external or UFR funding for further dengue vaccine and diagnostic research
- Adenovirus: acquire external or UFR funding to maintain lab capabilities and to continue assessments of new adenovirus serotypes
- Respiratory Viruses to include influenza: acquire external funding to maintain lab capabilities and to continue assessments of new threats from respiratory viruses including influenza.

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